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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/791,401	03/02/2004	Yuzuru Fukushima	09792909-5824	2557

26263 7590 04/13/2009
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EXAMINER

ALEJANDRO, RAYMOND

ART UNIT	PAPER NUMBER
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1795

MAIL DATE	DELIVERY MODE
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04/13/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/791,401	Applicant(s) FUKUSHIMA ET AL.	
	Examiner Raymond Alejandro	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 March 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,8 and 9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-2 and 8-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

This examiner's letter is filed in reply to applicant's amendment dated 03/24/09. The previously stated rejections under Section 112 and 103 have been overcome as specifically applied in the prior office action. Refer to the abovementioned amendment for details concerning applicant's rebuttal arguments and remarks. However, all pending are now finally rejected over new grounds of rejection as composed hereunder and for the reasons of record:

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any

Art Unit: 1795

evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-2 and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Japanese publication JP 2002-15771 (heretofore the JP'771) in view of Coowar 2004/0048165, and further in view of either: a) Morigaki et al 6821675 or b) Shiozaki et al 7393476.

The objective of the present application is aimed at an electrolyte wherein the disclosed inventive concept comprises the specific electrolyte composition.

As to claims 1 and 8:

The JP'771 discloses a non-aqueous electrolyte secondary cell and a non-aqueous electrolyte (TITLE). The cell comprises a positive electrode, a negative electrode and a non-aqueous electrolyte (P0045-0046, 0014, 0065, 0074/Abstract/CLAIM 7). The electrolyte comprises a mixture of solvents including ethylene carbonate (EC), propylene carbonate (PC), γ -butyrolactone (BL), vinyl ethylene carbonate (VEC), vinylene carbonate, ethylene sulfate, phenylethylene carbonate, tetraethylene glycol dimethyl ether (ABSTRACT/P0099, 0100, 0101). Specifically, the JP'711 is concerned with a mixture of multiple solvents including a 4th and/or 5th component (CLAIMS 1-3). VEC can be the 5th component (P0130).

(Emphasis added→) The JP'771 discloses the use of a gelled polymer electrolyte holding the electrolyte containing the electrolyte solution comprising solvents (P0040, 0056-0057, 0006, 0154). Additionally, disclosed therein is the use of at least ethylene carbonate (EC) and propylene carbonate (PC) in a combined amount of up to 85 % vol. (ABSTRACT, P0009, 0013,

Art Unit: 1795

0015, 0018, 0036, 0100-0101, CLAIM 1). *EC and PC are recognized in the art as high dielectric constant solvents.*

The electrolyte solution comprises solvents and a Li-salt such as LiClO₄ (P 0131 & 0096).

Table 5 shows an electrolyte solution comprising EC, PC, BL and VEC, wherein the weight percent of vinylene carbonate (VEC) ranges from 0.5-5 % (See TABLE 5). Further disclosed is the specific reasons for adding vinylene carbonate in the specified amount (P104, 0125). *Thus, the JP'771 teaches the claimed wt % range of VEC with sufficient specificity.*

Additionally, it is disclosed the use of polyacrylonitrile (PAN) or polyvinylidene fluoride (PVdF) in the non-aqueous electrolyte (P0057, 0154).

Two approaches:

- *the JP'771 discloses the claimed high molecular weight compound because it at once envisages combining an additional 4th and/or 5th component. In this case, either the 4th or the 5th component represents the high molecular weight compound.*
- *The JP'771 meet the claimed requirement because it discloses the use of polyacrylonitrile (PAN) or polyvinylidene fluoride (PVdF) in the non-aqueous electrolyte (P0057)*

The electrolyte comprises a mixture of solvents including ethylene carbonate (EC), propylene carbonate (PC), γ -butyrolactone (BL), vinylene carbonate (VEC), vinylene carbonate, ethylene sulfate, phenylene carbonate, tetraethylene glycol dimethyl ether (ABSTRACT/P0099, 0100, 0101). **Table 5** shows an electrolyte solution comprising EC, PC,

Art Unit: 1795

BL and VEC, wherein the weight percent of vinylethylene carbonate ranges from 0.5-5 % (See TABLE 5).

As to claims 2 and 9:

EXAMPLE 39, among other, in **TABLE 5** shows about 50:50 % ratio of EC and PC.

Other examples (See **EXAMPLES 35-38 and 40-44**) also show EC/PC ratio within the claimed ratio range.

The JP'771 describes an electrolyte and a battery comprising an electrolyte system as disclosed hereinabove. However, the preceding prior art reference does not expressly disclose the specific weight percent of the ethylene carbonate and propylene carbonate.

Coowar discloses an electrolyte for a secondary cell (TITLE) wherein the electrolyte comprises an electrolyte membrane (P0018-0022) made up of organic solvent that acts as a plasticizer which comprises propylene carbonate and ethylene carbonate and about 1.8 by weight % of an additive (P0022). In particular, there is disclosed that the electrolyte consists of 3 parts ethylene carbonate and 2 parts propylene carbonate (by weight) to which is added a small proportion of an additive in the amount of 1.0 % by weight, or 1.78 % by weight or 5 % by weight (P0026, and FIGURES 2a, 2b and 2c). *Thus, if the added amount of the additive is 1.8 wt %, then the content of both propylene carbonate and ethylene carbonate must be 98.2 wt %. Similarly, if the added amount of the additive is 1.0 wt %, or 1.78 wt % or 5 wt %, then the content of both propylene carbonate and ethylene carbonate must be 99.0 wt %, 98.22 wt % or, 95.0 wt %, respectively.*

In view of the above, it would have been obvious to a person possessing a level of ordinary skill in the field of the invention to employ the specific weight percent of the ethylene

Art Unit: 1795

carbonate and propylene carbonate of Coowar in the electrolyte system of the JP'771 as Coowar teaches that combining the specifically disclosed amount of ethylene carbonate and propylene carbonate with an additive in the battery electrolyte has a beneficial effect on cell performance, both in reducing the voltage of the electrode relative to the lithium, and in considerably reducing the irreversible loss of capacity. As to the specific weight percent of the organic solvents (i.e. ethylene carbonate and propylene carbonate), it would have been obvious to a person possessing a level of ordinary skill in the field of the invention to employ the specific weight percent of the organic solvents in the electrolyte solution as instantly claimed or any other amount thereof as both the JP'771 and Coowar themselves disclose that charging/discharging cycle, viscosity and ionic conductivity properties or cell performance (voltage and capacity) (*See JP'771 at paragraphs 0100-0101 & 0003 & Coowar P0026*) are affected when the amount or content of organic solvents in the electrolyte solution is varied or changed. Thus, both the JP'771 and Coowar recognize the specific weight percent of the organic solvents in the electrolyte solution as a variable that achieves a recognized result (*i.e. capable of varying the charge/discharge cycle, viscosity and ionic conductivity characteristics*) *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). See also *Peterson*, 315 F.3d at 1330, 65 USPQ2d at 1382; and *In re Hoeschele*, 406 F.2d 1403, 160 USPQ 809 (CCPA 1969). Hence, it is prima-facie obvious to select an optimized weight of the organic solvents in the electrolyte solution in order to obtain an electrolyte solution exhibiting suitable charging/discharging, viscous and ionic conductive properties and cell performance (voltage and capacity). Additionally, generally speaking, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or

Art Unit: 1795

temperature is critical. “[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.” *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). Thus, it is prima-facie obvious to choose or select the specific amount of the organic solvents. ***See MPEP 2144.05 Obviousness of Ranges.***

Additionally, none of the preceding references expressly discloses the specific gelatinized polymer.

However, **Morigaki et al** disclose a non-aqueous electrolyte battery comprising, among other features, a polymer gel electrolyte made of alkylene oxides or their derivatives such as polyethylene oxide or polypropylene oxide (COL 9, lines 55-64) wherein the electrolytic solution to be included in the polymer gel electrolyte is composed of non-aqueous solvents and lithium salts dissolved therein; and examples of the solvents include carbonate-based solvents such ethylene carbonate, propylene carbonate and vinylene-based carbonates (COL 10, lines 49-65). It is disclosed that alkylene oxide polymers are easy to handle because they have low melting points and that lithium salts can largely dissolve into them (COL 9, lines 60-64).

Similarly, **Shiozaki et al** disclose using polymer gel constituted of a polymer of ethylene oxide or propylene oxide, among others, as the electrolyte-separator for a lithium secondary battery (COL 16, lines 32-36). Use of a non-aqueous electrolyte in such a gel form is preferred in that it has the effect of preventing liquid electrolyte leakage (COL 16, lines 37-40). Particularly, the polymer gel are mixed with non-aqueous electrolyte comprising organic solvents such as propylene carbonate, ethylene carbonate and vinylene-based carbonates (COL 12, lines 51-67) and lithium salts (COL 13, lines 1-27).

In view of the above, it would have been obvious to a person possessing a level of ordinary skill in the field of the invention to employ the specific gelatinized polymer either of Morigaki et al or Shiozaki et al in the electrolyte system and/or battery of the JP'771 and Coowar as they two cited references (i.e. Morigaki et al or Shiozaki et al) teach the beneficial effects of using the same, for instance, it is disclosed that alkylene oxide polymers are easy to handle because they have low melting points and that lithium salts can largely dissolve into them (Morigaki et al COL 9, lines 60-64); and use of a non-aqueous electrolyte in such a gel form comprising the specific gelatinized polymer is preferred in that it has the effect of preventing liquid electrolyte leakage (Shiozaki et al COL 16, lines 37-40)

5. Claims 1-2 and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Japanese publication JP 2002-15771 (heretofore the JP'771) in view the Japanese publication JP 2001-057234 (herein called the JP'234), and further in view of either: a) Morigaki et al 6821675 or b) Shiozaki et al 7393476.

to claims 1 and 8:

The JP'771 discloses a non-aqueous electrolyte secondary cell and a non-aqueous electrolyte (TITLE). The cell comprises a positive electrode, a negative electrode and a non-aqueous electrolyte (P0045-0046, 0014, 0065, 0074/Abstract/CLAIM 7). The electrolyte comprises a mixture of solvents including ethylene carbonate (EC), propylene carbonate (PC), γ -butyrolactone (BL), vinyl ethylene carbonate (VEC), vinylene carbonate, ethylene sulfate, phenylethylene carbonate, tetraethylene glycol dimethyl ether (ABSTRACT/P0099, 0100, 0101).

Art Unit: 1795

Specifically, the JP'711 is concerned with a mixture of multiple solvents including a 4th and/or 5th component (CLAIMS 1-3). VEC can be the 5th component (P0130).

*(Emphasis added→) The JP'771 discloses the use of a gelled polymer electrolyte holding the electrolyte containing the electrolyte solution comprising solvents (P0040, 0056-0057, 0006, 0154). Additionally, disclosed therein is the use of at least ethylene carbonate (EC) and propylene carbonate (PC) in a combined amount of up to 85 % vol. (ABSTRACT, P0009, 0013, 0015, 0018, 0036, 0100-0101, CLAIM 1). *EC and PC are recognized in the art as high dielectric constant solvents.**

The electrolyte solution comprises solvents and a Li-salt such as LiClO₄ (P 0131 & 0096).

Table 5 shows an electrolyte solution comprising EC, PC, BL and VEC, wherein the weight percent of vinylethylene carbonate (VEC) ranges from 0.5-5 % (See TABLE 5). Further disclosed is the specific reasons for adding vinylethylene carbonate in the specified amount (P104, 0125). *Thus, the JP'771 teaches the claimed wt % range of VEC with sufficient specificity.*

Additionally, it is disclosed the use of polyacrylonitrile (PAN) or polyvinylidene fluoride (PVdF) in the non-aqueous electrolyte (P0057, 0154).

Two approaches:

- *the JP'771 discloses the claimed high molecular weight compound because it at once envisages combining an additional 4th and/or 5th component. In this case, either the 4th or the 5th component represents the high molecular weight compound.*

Art Unit: 1795

- *The JP'771 meet the claimed requirement because it discloses the use of polyacrylonitrile (PAN) or polyvinylidene fluoride (PVdF) in the non-aqueous electrolyte (P0057)*

The electrolyte comprises a mixture of solvents including ethylene carbonate (EC), propylene carbonate (PC), γ -butyrolactone (BL), vinylethylene carbonate (VEC), vinylene carbonate, ethylene sulfate, phenylethylene carbonate, tetraethylene glycol dimethyl ether (ABSTRACT/P0099, 0100, 0101). **Table 5** shows an electrolyte solution comprising EC, PC, BL and VEC, wherein the weight percent of vinylethylene carbonate ranges from 0.5-5 % (See TABLE 5).

As to claims 2 and 9:

EXAMPLE 39, among other, in **TABLE 5** shows about 50:50 % ratio of EC and PC. Other examples (See **EXAMPLES 35-38 and 40-44**) also show EC/PC ratio within the claimed ratio range.

The JP'771 describes an electrolyte and a battery comprising an electrolyte system as disclosed hereinabove. However, the preceding prior art reference does not expressly disclose the specific weight percent of the ethylene carbonate and propylene carbonate.

The JP'234 discloses a non-aqueous electrolyte and a non-aqueous electrolyte secondary battery wherein the non-aqueous electrolyte is composed of 95 wt % of cyclic carbonate solvents such as propylene carbonate (PC) and/or ethylene carbonate (EC) (P0025-0026, 0003, Abstract) to improve the life of a battery and the leakage current value (ABSTRACT). *EC and PC are recognized in the art as high dielectric constant solvents.* JP'234 also discloses **LiClO₄** (P0003 & 0021).

In view of the above, it would have been obvious to a person possessing a level of ordinary skill in the field of the invention to employ the specific weight percent of the high dielectric constant solvent of the JP'234 in the electrolyte solution of the JP'771 because the JP'234 teaches that such an amount (weight percent) of the high dielectric constant solvent in the electrolytic solution allows to improve the life of a battery and the leakage current value.

Moreover, both the JP'771 and the JP'234 discloses that charging/discharging cycle, viscosity and ionic conductivity properties (*See JP'771 at paragraphs 0100-0101 & 0003*) and/or the life of a battery and the leakage current value (*See JP'237 at P0025-0026, 0003, Abstract*) are controlled or affected when the amount or content of high dielectric constant solvents in the electrolyte solution is varied or changed. Thus, both the JP'771 and the JP'234 recognize the specific weight percent of the high dielectric constant solvents in the electrolyte solution as a variable that achieves a recognized result (*i.e. capable of varying the charge/discharge cycle, viscosity and ionic conductivity characteristics; and/or batter life and leakage current value*) *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). See also *Peterson*, 315 F.3d at 1330, 65 USPQ2d at 1382; and *In re Hoeschele*, 406 F.2d 1403, 160 USPQ 809 (CCPA 1969). Hence, it is prima-facie obvious to select an optimized weight of the high dielectric constant solvents in the electrolyte solution in order to obtain an electrolyte solution exhibiting suitable charging/discharging, viscous and ionic conductive properties. Additionally, generally speaking, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. “[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by

Art Unit: 1795

routine experimentation.” *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Thus, it is prima-facie obvious to choose or select the specific amount of the high dielectric constant solvents. *See MPEP 2144.05 Obviousness of Ranges*.

Additionally, none of the preceding references expressly discloses the specific gelatinized polymer.

However, **Morigaki et al** disclose a non-aqueous electrolyte battery comprising, among other features, a polymer gel electrolyte made of alkylene oxides or their derivatives such as polyethylene oxide or polypropylene oxide (COL 9, lines 55-64) wherein the electrolytic solution to be included in the polymer gel electrolyte is composed of non-aqueous solvents and lithium salts dissolved therein; and examples of the solvents include carbonate-based solvents such ethylene carbonate, propylene carbonate and vinylene-based carbonates (COL 10, lines 49-65). It is disclosed that alkylene oxide polymers are easy to handle because they have low melting points and that lithium salts can largely dissolve into them (COL 9, lines 60-64).

Similarly, **Shiozaki et al** disclose using polymer gel constituted of a polymer of ethylene oxide or propylene oxide, among others, as the electrolyte-separator for a lithium secondary battery (COL 16, lines 32-36). Use of a non-aqueous electrolyte in such a gel form is preferred in that it has the effect of preventing liquid electrolyte leakage (COL 16, lines 37-40). Particularly, the polymer gel are mixed with non-aqueous electrolyte comprising organic solvents such as propylene carbonate, ethylene carbonate and vinylene-based carbonates (COL 12, lines 51-67) and lithium salts (COL 13, lines 1-27).

In view of the above, it would have been obvious to a person possessing a level of ordinary skill in the field of the invention to employ the specific gelatinized polymer either of

Morigaki et al or Shiozaki et al in the electrolyte system and/or battery of the JP'771 and Coowar as they two cited references (i.e. Morigaki et al or Shiozaki et al) teach the beneficial effects of using the same, for instance, it is disclosed that alkylene oxide polymers are easy to handle because they have low melting points and that lithium salts can largely dissolve into them (Morigaki et al COL 9, lines 60-64); and use of a non-aqueous electrolyte in such a gel form comprising the specific gelatinized polymer is preferred in that it has the effect of preventing liquid electrolyte leakage (Shiozaki et al COL 16, lines 37-40)

Response to Arguments

6. Applicant's arguments, filed 03/24/09, with respect to the rejection(s) of claim(s) 1-2 and 8-9 under Section 103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of the newly discovered references Morigaki et al'675 and Shiozaki et al'476.

7. All of the applicant's arguments concerning the absence of the specific gelatinized polymer recited in amended claims 1 and 8 have been addressed by the incorporation of Morigaki et al'675 and Shiozaki et al'476 which show those gelled polymer materials, in substantially the same electrochemical environment and battery system. Thus, there is no need to address any one of those arguments.

8. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). *The arguments raised by the applicant on pages 4-7 of the 03/24/09 amendment appear to discuss the JP'771 reference,*

Art Unit: 1795

alone, singly or individually. Those arguments constitute a piecemeal analysis of the JP'771 reference, and ignore the contributions made by secondary references Coowar'165 and JP'234. Since the formulation of 103 rejection is on the basis of the teachings of JP'771 and Coowar'165 or JP'771 and JP'234, applicant's strategy of attacking the JP'771 alone is inappropriate and ineffective to overcome the portions of the rejection addressing the combination of ethylene carbonate and propylene carbonate with vinyl ethylene carbonate. It bears noting that secondary references Coowar'165 and JP'234 do positively show the claimed amount of ethylene carbonate and propylene carbonate in an electrolyte composition. Since JP'771 uses both carbonate solvents (i.e. ethylene carbonate and propylene carbonate), the teachings of Coowar'165 and JP'234 properly mitigate the deficiency of JP'771 with respect to specific amount of material or concentrations. Succinctly stated, the shortcomings of JP'771 are made up by the concrete teachings of Coowar'165 and JP'234 concerning the preferable amount of ethylene carbonate and propylene carbonate used in electrolyte compositions. Yet further, nothing in applicant's claimed invention does exclude other electrolyte components (e.g. such as gamma-butyrolactone) independently of their final intended amount. Applicant's transitional phrases "comprising", "containing" or variants thereof permit the inclusion of other materials or components regardless of the final synergistic effect.

9. With respect to applicant's comment that "Coowar teaches an electrolyte membrane rather than an electrolyte solution and the additive is a chloroethyl-ethyl-carbonate...". First note that Coowar has been cited because it employs, in combination, ethylene carbonate and propylene carbonate in an electrolyte composition in substantially the same proportions intended by the applicant. That is the most relevant part of that disclosure. If Coowar uses a different

Art Unit: 1795

additive, that is totally irrelevant to the discussion of that reference. What is important to note here is that Coowar shows the combination of the two (2) organic solvents claimed by the applicant, their specific weight proportions or amounts of material as claimed by the applicant, and the inclusion of an additive therein to form an electrolyte composition as claimed by the applicant. As to the electrolyte membrane rather than an electrolyte solution, the examiner does not understand the nature of applicant's allegation simply because, in the end, applicant's final electrolyte is a quasi-solid or solid-like material or gelled material substantially similar to the solid membrane taught by Coowar. The examiner would side with the applicant if and only if the final electrolyte were a **liquid composition** per se. But since the final state of applicant's electrolyte is not LIQUID, applicant's allegation is poor and technically misplaced, and adds nothing of significance to the patentability of the claims at issue.

10. With respect to the 103 rejection over JP'771 in view of JP'234, it is noted that applicant did not fully address such rejection. The new grounds of rejection now include the claimed electrolyte solution and the polymer. Other than asserting that the references failed to teach the claimed electrolyte solution and the polymer, no other argument has been advanced. Further, applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references. Applicant's arguments do not comply with 37 CFR 1.111(c) because they do not clearly point out the patentable novelty which he or she thinks the claims present in view of the state of the art disclosed by the references cited or the objections made. Further, they do not show how the amendments avoid such references or objections.

11. As for applicant's arguments against the JP'771, individually or in combination with the JP'234, it is contended that the high chemical stability and high capacity leading to less swelling of the container attributable to the specific weight ratio of ethylene and propylene carbonate in addition to vinyl ethylene carbonate is also attained in the electrolyte and battery system of the prior art because the art of record discloses the same electrolyte system (components) in a substantially similar mixed amount. In fact, the JP'771, when taken alone, shows an amount of up 85 % volume which is close enough to applicant's claimed range; on the other hand, the JP'771 in combination with JP'234 shows specifically the same electrolyte composition in terms of both components and specific weight content. Therefore, both electrolytes (JP'771, individually; or the JP'771 in combination with JP'234) are capable of behaving in the same manner that applicant's electrolyte composition does for purposes of swelling, capacity and/or chemical stability. So far, applicant has not come forward with objective, sound or scientific evidence demonstrating that his/her electrolyte composition exhibits superior characteristics when compared to the electrolyte composition of the prior art. Burden of proof is on applicant. A vis-à-vis comparison between the disclosed electrolyte system and applicant's electrolyte system to show the existence of significantly statistical difference, if any, has not been presented for a factual determination of patentability.

To further support the position taken by the Examiner, it is noted that both the JP'771 and the JP'234 recognize the specific weight percent of the high dielectric constant solvents in the electrolyte solution as a variable that achieves a recognized result (*i.e. capable of varying the charge/discharge cycle, viscosity and ionic conductivity characteristics; and/or batter life and leakage current value*) In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). See also

Peterson, 315 F.3d at 1330, 65 USPQ2d at 1382; and In re Hoeschele, 406 F.2d 1403, 160 USPQ 809 (CCPA 1969). Hence, it is prima-facie obvious to select an optimized weight of the high dielectric constant solvents in the electrolyte solution in order to obtain an electrolyte solution exhibiting suitable charging/discharging, viscous and ionic conductive properties.

Additionally, generally speaking, differences in concentration will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration is critical. “[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.” In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). Thus, it is prima-facie obvious to choose or select the specific amount of the high dielectric constant solvents. *See MPEP 2144.05 Obviousness of Ranges.*

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Raymond Alejandro whose telephone number is (571) 272-1282. The examiner can normally be reached on Monday-Thursday (8:00 am - 6:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Raymond Alejandro/
Primary Examiner, Art Unit 1795